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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,849	02/19/2004	Yasunobu Sugimoto	0055/064001	2466

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SMITH PATENT OFFICE
1901 PENNSYLVANIA AVENUE N W
SUITE 200
WASHINGTON, DC 20006

EXAMINER

LOUIE, WAI SING

ART UNIT PAPER NUMBER

2814

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/780,849	Applicant(s) SUGIMOTO ET AL.	
	Examiner Wai-Sing Louie	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/19/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

Claims 1-15 are rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- It is unclear what “the platinum group” means. For the purpose of examination, “the platinum or its alloys” is assumed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US 6,649,941) in view of Nakamura et al. (US 6,610,995).

With regard to claims 1-6, and 16-21, Uemura discloses a nitride semiconductor device (col. 4, line 40 to col. 9, line 20 and fig. 4a) comprising:

- A semiconductor layer 309 (fig. 4a);
- A first electrode 310 for establishing an ohmic contact disposed on the semiconductor layer 309, the first electrode 310 including an upper layer 312 and

a lower layer 311 and being subjected to heat treatment (col. 7, lines 56-65 and col. 8, lines 53-60 and fig. 4a);

- A second electrode 320 formed on the first electrode 310 (fig. 4a), the second electrode 320 having different shape of the first electrode 310 (fig. 4a), the second electrode 320 further including an upper layer 323 and a lower layer 322 (col. 7, line 66 to col. 8, line 5), but do not disclose the upper layer of the first electrode 312 and the lower layer of the second electrode 321 comprise an element of the platinum or its alloys and form a joint region joining the first electrode 310 to the second electrode 320. However, Nakamura et al. disclose using platinum to joint the bonding pad 17 to the p-type electrode 15 (Nakamura col. 7, lines 17-20 and fig. 1). Nakamura et al. teach that platinum is a good adhesion with metals forming bonding (Nakamura col. 7, lines 21-23). Uemura and Nakamura et al. have substantially the same environment of LED having multilayer p-type electrode. Therefore, it would have been obvious for the one with ordinary skill in the art to modify Uemura's device with the teaching of Nakamura et al. to use platinum in the upper layer of the first electrode 312 and the lower layer of the second electrode 322 in order to form good adhesion between two layers.

With regard to claims 7, and 22, Uemura discloses the surface of the semiconductor layer 309 on which the first electrode 310 is formed comprises an electrode formation region and an insulating layer 330 formation region and the second electrode 320 overlies the electrode formation region and the insulating layer 330 formation region (fig. 4a).

With regard to claims 8, 23, and 32, Uemura discloses the insulating layer 330 formation region comprises a plurality of areas arranged on both sides of the electrode formation region in a stripe (fig. 4a).

With regard to claims 9, 24, 33, and 38, Uemura discloses the semiconductor layer 309 has a ridge and the first electrode 310 is disposed on the upper surface of the ridge so that the nitride semiconductor device function as a laser device (col. 8, line 46).

With regard to claims 10, 25, 34, and 39, Uemura discloses a first insulating layer extending from the side surfaces of the ridge to the upper surface of the semiconductor layer 309 and a second insulating layer extending from the upper surface of the first insulating layer to the side surfaces of the semiconductor layer 309, the second insulating layer being separate from the first electrode 310 (fig. 4a).

With regard to claims 11, 26, 35, and 40, Uemura discloses an adhesion layer 220 comprising a single-layer film, where the adhesion layer 321 is disposed on the surface of at least one of the first insulating layer 330 and the insulating layer 330 (fig. 4a).

With regard to claims 12-14, 27-30, 36-37, and 41-42, in addition to the limitations disclosed in claim 1, Uemura discloses the adhesion layer 321 can be made of Cu, Ag, Au, or other conducting metal or alloy (col. 6, lines 51-55) and Uemura discloses Pt is used in the conducting metal (col. 5, lines 16-17). Thus, Pt could be used in the adhesion layer 321.

With regard to claim 15, Uemura discloses the adhesion layer 321 is in contact with the upper surface 322 and the lower surface 312 of the first electrode 310 (fig. 4a).

With regard to claim 31, in addition to the limitations disclosed in claim 1 and 16 above, Uemura modified by Nakamura et al. also disclose:

- The surface of the semiconductor layer 309 on which the first electrode 310 is formed comprises an electrode formation region and an insulating layer 330 formation region and the second electrode 320 overlies the electrode formation region and the insulating layer 330 formation region (fig. 4a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wsl
April 5, 2005.

